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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FLANIGAN, ALLEN J

ART UNIT PAPER NUMBER

3753

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,475

Applicant(s)

PALANCHON, LAURENT

Examiner

Allen J. Flanigan

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 8-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 16-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

Claims 8-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification as originally filed has no support for the limitation now claimed in claim 18. Fig. 1 for example shows indentations 1d forming ribs, but the plate from which ribs are pressed is shown as being of uniform thickness. No showing of a "double metal wall" is shown or described.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 16, 17, 19, 20, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Okuda et al.

See Figs. 1-4 of Okuda et al. Note lines 50-51 of column 10, lines 20-25 of column 11 of Okuda et al. Since the drawings show the channel width W to

be approximately twice the thickness of the plate, it is clear that the overall thickness of the tube (depth "D" plus twice the plate thickness) will equal approximately twice the dimension D, or from 1 to 5 mm. Note also that the upper or lower value of a suggested range is considered to be a specific value taught by the prior art for the purposes of anticipation¹. Thus, the value range recited in claims 2 and 4 is considered to be anticipated by Okuda et al. Regarding claim 3, at the lower end of the suggested range of values for W, if the plate thickness is approximately half of W as shown in the drawings, then it would equal about 0.25mm, which falls within the claimed range. Regarding claim 5, note the fin pitch of 2 mm indicated for Sample 1 in Table 1. Regarding claims 16 and 22, see Fig. 8; regarding claim 19, the term "may" is not seen to be further limiting, as it includes the possibility "may not". Regarding claim 20, note lines 19-24 of column 10.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al. in view of Torigoe, or Nishishita.

¹ Ex parte Lee 31 USPQ2d 1105 ; requirement of teaching of "sufficient specificity" as required in MPEP 2131.03 was deemed to be met by end value of disclosed range of the prior art.

Assuming arguendo that Okuda et al. do not positively disclose a plate thickness of about 0.25mm, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to make the plates as thin as possible while being thick enough to provide the requisite mechanical strength (capable of being formed, handled, without damage, able to withstand internal pressure, etc.). It is well known in the art that making the wall separating heat exchange media as thin as possible improves efficiency; the thicker the wall, the more thermal conduction thereacross is impeded. Torigoe, for example, shows similar plates formed of brazing sheet 0.4-0.6 mm thick, Nishishita teaches a thickness of 0.25 mm to 0.45 mm.

Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al. in view of Nishishita.

Okuda et al. do not give any specific recommended values for fin thickness, width, or height. Generally, it is known in the art to make fins as thin as practicable, to reduce weight and optimize surface area with minimal pressure drop (frontal area increases with thicker fins). Nishishita teaches a preferred range of fin thickness of 0.06-0.1 mm, and it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to make the fins of Okuda et al. of a thickness within this range. Regarding fin height and width, again, these parameters are known in the art to have optimum ranges depending on the application which strike an optimum compromise between heat transfer efficiency, weight, cost, and airside

pressure drop. Nishishita teach preferred values for fin height and width of from 7 mm-9 mm and from 50 mm - 65 mm, respectively. Both of these preferred ranges overlap those claimed by the applicant. See MPEP 2144.05.


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references show various stacked plate evaporator constructions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (703) 308-1015. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Scherbel can be reached on (703) 308-1272. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7764.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.


Allen J. Flanigan
Primary Examiner
Art Unit 3753

AJF